

WHAT IS CLAIMED IS:

1. A piezoelectric oscillator unit comprising:  
a circuit substrate having an oscillatory circuit mounted  
5 thereon;  
a vibrator package overlaid on said circuit substrate, said  
vibrator package housing a piezoelectric member therein and said  
vibrator package having electrodes provided on the bottom surface  
thereof which are bonded to electrodes provided on the top surface  
10 of said circuit substrate; and  
an adhesive arranged to bond said circuit substrate and said  
vibrator package together.

2. A piezoelectric oscillator unit according to Claim 1,  
15 wherein said adhesive is a thermosetting adhesive.

3. A piezoelectric oscillator unit according to Claim 1,  
wherein said adhesive is solder.

20 4. A piezoelectric oscillator unit according to Claim 1,  
wherein the circuit substrate is defined by a multilayer ceramic  
substrate, and includes a cavity disposed at the approximate  
center thereof to mount components.

25 5. A piezoelectric oscillator unit according to Claim 4,

wherein said multilayer ceramic substrate includes a wall provided around the cavity.

6. A piezoelectric oscillator unit according to Claim 5,  
5 wherein said electrodes are provided at four corners of the top surface of the wall, and external electrodes are provided at four corners of the bottom surface of the wall.

7. A piezoelectric oscillator unit according to Claim 4,  
10 wherein a transistor for oscillation and buffer amplification, a varicap diode, a multilayer capacitor, a chip thermistor for temperature compensation, and a chip resistor are surface-mounted within said cavity.

8. A piezoelectric oscillator unit according to Claim 1,  
15 further comprising a case arranged to receive said vibrator package, and a shielding plate arranged on said case to hermetically seal said vibrator package.

9. A piezoelectric oscillator unit according to Claim 1,  
20 wherein said circuit substrate includes via holes arranged to connect said electrodes provided on the bottom surface of said circuit substrate to said electrodes provided on said top surface of said circuit substrate.

*Inventor's*

10. A piezoelectric oscillator unit comprising:  
a circuit substrate having an oscillatory circuit mounted  
thereon;  
a vibrator package overlaid on said circuit substrate, said  
5 vibrator package housing a piezoelectric member therein and said  
vibrator package having electrodes provided on the bottom surface  
thereof which are bonded to electrodes provided on the top surface  
of said circuit substrate;  
a shielding case covering said vibrator package so that said  
10 shielding case contains said vibrator package; and  
an adhesive arranged to adhere said shielding case to said  
circuit substrate.

11. A piezoelectric oscillator unit according to Claim 10,  
15 wherein said shielding case is provided with protrusions, said  
circuit substrate is provided with holes, each of said protrusions  
is inserted into a corresponding one of said holes, and said  
protrusions are fixed in said holes by said adhesive which is  
filled in said holes.

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12. A piezoelectric oscillator unit according to Claim 10,  
wherein said adhesive is a thermosetting adhesive.

13. A piezoelectric oscillator unit according to Claim 11,  
25 wherein said adhesive is a thermosetting adhesive.

14. A piezoelectric oscillator unit according to Claim 10,  
wherein said adhesive is solder.

5 15. A piezoelectric oscillator unit according to Claim 10,  
wherein said vibrator package is a quartz vibrator package.

10 16. A piezoelectric oscillator unit according to Claim 11,  
wherein said protrusions of said shielding case are claws.

15 17. A piezoelectric oscillator unit according to Claim 10,  
wherein the circuit substrate is defined by a multilayer ceramic  
substrate, and includes a cavity disposed at the approximate  
center thereof to mount components.

20 18. A piezoelectric oscillator unit according to Claim 17,  
wherein said multilayer ceramic substrate includes a wall  
provided around the cavity.

Sub B2 → 19. A piezoelectric oscillator unit according to Claim 18,  
wherein said electrodes are provided at four corners of the top  
surface of the wall, and external electrodes are provided at  
four corners of the bottom surface of the wall.